Additional Benefits

H2Obvious has a primary function, to capture, indicate and identify fluid that exists on the surface of a pipe, the inner surface of the insulation or which may be saturated into the insulation media of an insulated pipe. In consequence that fluid fills a float chamber/vial within the device and, if conductive, starts an alarm with the flashing LED.

Analysis of the scene leads to one of two conclusions:

a) Float rises but no flashing light -probably Hydrocarbon
b) Float rises with flashing light -probably substantially water

The H2Obvious vial can then be unscrewed from the collector funnel, capped and taken to the lab for further analysis. From this sample, hydrocarbon or other process product (if any) can be identified and compared with that of the product inside the pipe. If analysis shows the same, there is undoubtedly a product release/leak nearby. If the sample shows differences, there is a product release somewhere else, moving either along the pipe or within the insulation media.

If water is found, it can be analysed for ph level, resistivity and other properties to identify the impurities it contains.

Assuming water ingress:

When at the time of the initial alarm and fault, the water is pretty clear; it can be assumed that little or no corrosion/deterioration has taken place and that the protective coating on the pipe is sound. It may be some time before the pipe needs attention. The rate at which deterioration will occur depends on many things including the ph level of the water, the cyclic temperature regime of the pipe, the amount of future ingress and the type and quality of coating used. The best time to repair and refurbish the fabric is difficult or nearly impossible to predict without further monitoring.

However, the device can then be flushed out and re-installed on the collector funnel, the incident logged and a monitoring regime instigated. The devices' electronic alarm may be spent but its float chamber will continue to attract fluid raising the visible float, which may be sampled as before at regular intervals, perhaps monthly. The analysis can be compared with those of previous samples and a prediction of the deterioration produced giving the most economic time for safe repair of the fault. If a sudden change in the sample is noticed such as high iron oxide content, the prediction can be revised and the repair date brought forward. Other monitoring methods can be applied just to the section of pipe identified as "At risk" These identified sections of pipe could be pulsed eddy current, ultrasonic, thermography, radiography or guided wave based methods which, while normally difficult to apply, may be beneficial in providing a quantitative analysis of pitting or wall thickness when you know just where to look.

If, subsequent to the initial alarm, the next adjacent device(s) alarm themselves, then it can be interpreted that the water is ingressing to the extent that the sheer volume is flowing past the first alarmed device, which may be full and that the damaged area is increasing. Again, this discovery may necessitate a change in plan to bring forward a limited 'strip and search' on the affected section.

Even so, the early warning, indication and monitoring process means that it is likely that such work can be aligned with a natural, planned shutdown or existing maintenance plan for that part of the facility.